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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,488	05/10/2004	Ham-Huah Hsu	12792-US-PA	3487

31561 7590 05/25/2007

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER	
JOHNSON, RYAN	
ART UNIT	**PAPER NUMBER**
2817	

NOTIFICATION DATE	DELIVERY MODE
05/25/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

Office Action Summary	Application No.	Applicant(s)	
	10/709,488	HSU, HAM-HUAH	
	Examiner	Art Unit	
	Ryan J. Johnson	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6 and 7* is/are rejected.

7)☒ Claim(s) *4,5 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (U.S. Patent No. 4,772,833).

4. Claims 1,6: Tanaka discloses a circuit and method for performing pulse width modulation (Fig.4) suitable for generating a PWM signal (PWMout) according to an input data (D7-D0) with M (8Q-5Q) +N (4Q-1Q) bits, the pulse width of the PWM signal dithering in 2^N frames (Tanaka describes dithering in 16 frames, which is 2^4; col.4,61-64) and corresponding to a value of the input data (col.4,43-64), comprising: a pulse density modulator (51,6), for receiving the least N bits of the input data (D0-D3) and generating a pulse density modulation signal (Cout of 51), wherein a number of pulse of the pulse density modulation signal in 2^N frames (16 frames) correspond to a value of the least N bits of the input data (col.4,61-64);

a first adder (52), electrically coupled to the PDM (51,6) for generating a PWM data by adding the most M bits of the input data to a value of the pulse density modulation signal (col.4,43-64); and

a pulse width modulator (7), electrically coupled to the first adder (52) for generating a PWM signal (PWMout) dithering in 2^N frames according to the PWM data (Tanaka describes dithering in 16 frames, which is 2^4; col.4,61-64).

5. Claim 2: Tanaka discloses wherein the PDM comprises:

a latch (the rounding error register is described as a D-type flip flop; col.4,6-12. A D-type flip flop must inherently contain a latch); and

a second adder (51), electrically coupled to the latch for generating a carry and a summation by adding a value of the least N bits of the input data to an output of the latch, outputting the carry as the pulse density modulation signal, and updating the latch with the summation when converting the frame (col.4,43-64).

6. Claims 3,7: Tanaka discloses wherein before a value of the most M bits of the input data (D7-D4) is added to the value of the pulse density modulation signal (Cout) by the first adder (52), the M bits input data is sign-extended to an input data with at least M+1 bits (the adder 52 outputs a carry Cout to the PWM counter 7), so as to generate a PWM data with at least M+1 bits (the adder 52 outputs a carry Cout to the PWM counter 7).

Allowable Subject Matter

7. Claims 4,5 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: Prior art does not show the PWM modulator including a latch, an absolute value calculator, a counter, a comparator and positive and negative PWM outputs.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakamura (U.S. Patent No. 5,177,373) and Park (U.S. Patent No. 6,281,822) disclose similar PWM modulation circuits.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan J. Johnson whose telephone number is 571-270-1264. The examiner can normally be reached on Monday - Thursday, 9:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RJJ

Robert Pascal
Supervisory Patent Examiner
Technology Center 2800